Commercial Series 2 Heat Pump Range



Hot water generation using free energy from the air, by using our Air to Water models. Or heat water, via using waste heat from a chiller, after installing our Water to Water models.

AIR TO WATER HEAT PUMP

18 + 40kW

FOR WHERE ENERGY EFFICIENCY IS ESSENTIAL

HEAT PUMP | HOT WATER TO 65°C | SAVE UP TO 75% ENERGY | FLEXIBLE



HIGHLY EFFICIENT

Uses up to 75% less of the operating cost of an electric water heater. Delivers hot water up to 65°C, with a system Coefficient of Performance (COP) of up to 4.01. This makes it substantially cheaper to run than electric, natural gas or ULPG. Highly efficient option for fuel redundancy. Heat pumps can also be used as a preheat to other boost fuel types.

GREEN POINTS

Adds to the green points for end-of-trip facilities. The heat pump is designed to draw its air from and discharge within basement car parks without flueing, unlike gas systems.

MULTIPLE INSTALLATION OPTIONS

Designed for both vertical or horizontal discharge options, with a discharge fan option available in both ducted and non-ducted versions. Horizontal discharge models can also be stacked two high to reduce plant footprint (suffix 'S').

SUITS MOST OF NEW ZEALAND'S CLIMATE*

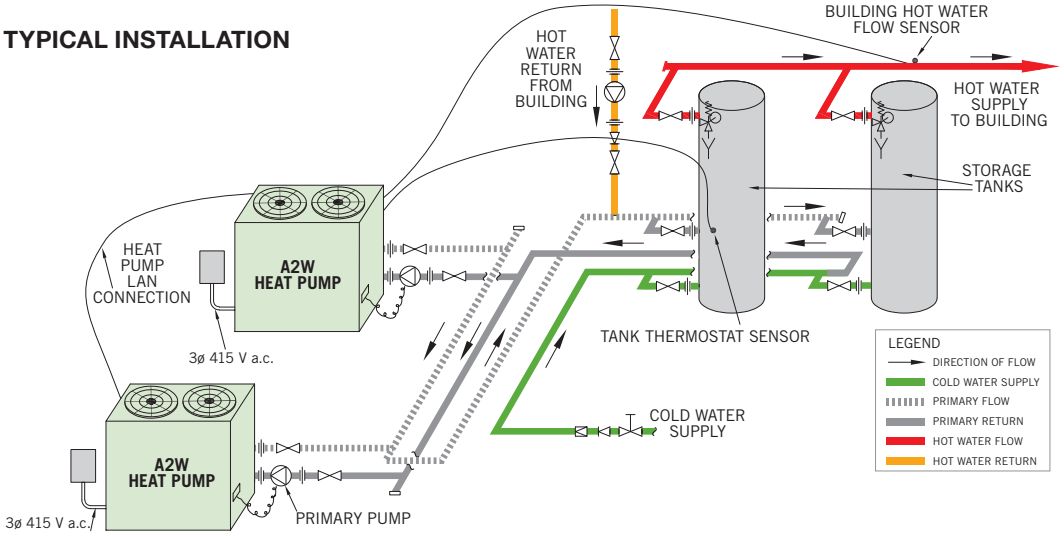
Automatic defrost allows continued performance in low ambient temperature conditions by diverting a portion of the hot refrigerant to the evaporator coil to melt any ice which may form. In addition, the evaporator is dipped to provide extra protection in corrosive atmospheres, and the unit has been tested in ambient conditions as high as 40°C.

SEALED SYSTEM 2 YEAR WARRANTY

PARTS & LABOUR 1 YEAR WARRANTY

WaterMark
AS 3498
Lic WMK 21549
SAI Global

TYPICAL INSTALLATION



* Enquire at Rheem New Zealand Ltd]for very cold climates

Rheem iQ control provides on board diagnostics, system configuration and optional high level BMS connectivity via Modbus or BACnet

TECHNICAL DATA 18kW

AIR TO WATER 18kW MODELS

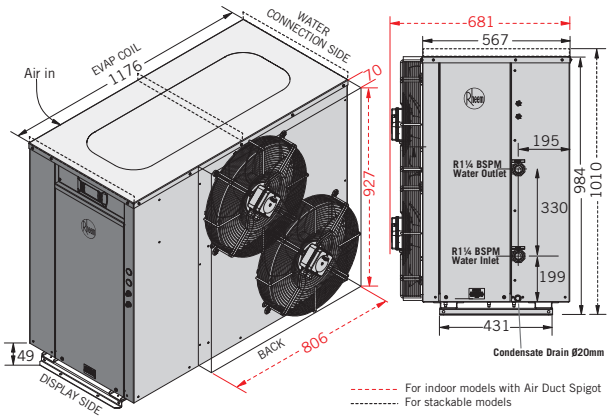
Product data		Ducted Exhaust	Non Ducted Exhaust
Heating Capacity*	kW	17.46	17.46
Power Input*	kW	4.01	4.01
COP*		4.0	4.0
Recovery @ 50°C Rise*	L/hr	300	
Operating Range (ambient)	°C	5-45	
Outlet Temperature	°C	65	
Refrigerant		R134a	
Hot Water Side			
TPR Valve Setting (VE/SS)	kPa	1000/850	
ECV Setting (VE/SS)**	kPa	850 /700	
Maximum Water Pressure Supply			
- Without ECV (VE/SS)**	kPa	800/680	
- With ECV (VE/SS)**	kPa	650/550	
Air Side			
Air Flow (at maximum static pressure)	L/s	1600	
Maximum Static Pressure	Pa	80	20
Electrical Connection			
Power supply		3Phase/415V/50Hz	
Max Current per Phase (running, incl pump)	Amps	17.06	15.22
Minimum Circuit Size (per phase)	Amps	20	
Installation Data			
Minimum Ventilation per inlet and outlet	m^2	1	
Minimum room volume for indoor installation^	m^3	7.5	
Sound Pressure Level	dBA	59@3m	
Approx Weight Empty	kg	120	
Approx Weight Full	kg	125	
Storage per Heat Pump	L	400-4,000	
Clearances			
Evaporator Coil Side	mm	500	
Back (vertical discharge models)	mm	Nil	
Back (horizontal discharge models)	mm	1200	
Display Side	mm	850	
Water Connections Side	mm	500	
Top (vertical discharge models)	mm	1200	
Top (horizontal discharge option)	mm	Clearance above unit required for service personnel to stand	

ACCESSORIES

Storage Tank	Pump	BMS Card	LAN Cable
410L (VE) A610 430	CM 3-2 #366084	17520 BACnet TCP/IP	17495
1000L to 5000L (SS)		17521 BACnet MS/TP	
RT Series		17522 Modbus RS485	

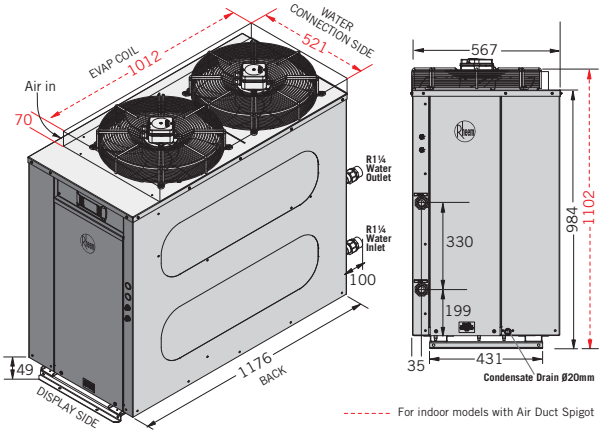
18kW AIR TO WATER – ALL HORIZONTAL DISCHARGE MODELS

953018H0 – Non Ducted 953018HS – Non Ducted stackable
952018H0 – Ducted 952018HS – Ducted stackable



18KW AIR TO WATER – ALL VERTICAL DISCHARGE MODELS

95301800 – Non Ducted 95201800 – Ducted



HEAT PUMP SIZING CHART

	Number of Heat Pumps in Parallel			
	1	2	3	4
Primary Pump	Grundfos CM 3-2 #366084			
Branch Size ID	40			
Header Size ID	40	50	65	80

Note: Header pipe sizing is based on a total length of 40m of primary flow and return piping and 20 bends, excluding equa-flow manifolds on storage tanks and heat pumps @ 1.2m/sec velocity. One pump per Heat Pump.

RECOVERY

Ambient Temperature °C	5	10	15	20	25	30	35	40
Output (kW)	12	14.5	16.4	17.46	19.5	21.7	22.5	23
Recovery – Litres per hour								
20°C rise	516	624	705	751	839	933	968	989
25°C rise	413	499	564	601	671	746	774	791
30°C rise	344	416	470	501	559	622	645	659
35°C rise	295	356	403	429	479	533	553	565
40°C rise	258	312	353	375	419	467	484	495
45°C rise	229	277	313	334	373	415	430	440
50°C rise	206	249	282	300	335	373	387	396
55°C rise	188	227	256	273	305	339	352	360

* 20°C ambient/60%RH. 39°C water in / 45°C water out.

** ECV not supplied with water heater

^ To comply with AS1677.2, the minimum room size permissible is 7.5m3 for 18kW and 17.73m3 for 40kW per heat pump for indoor installation. A larger room size is recommended for efficient heat pump operation.

TECHNICAL DATA 40kW

AIR TO WATER 40kW MODELS

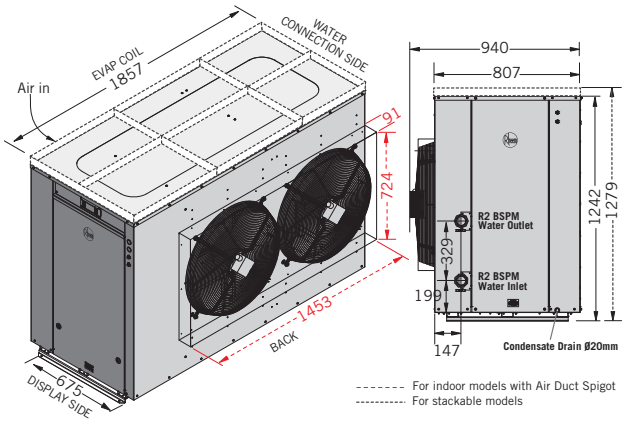
Product data		Ducted Exhaust	Non Ducted Exhaust
Heating Capacity*	kW	39.55	39.55
Power Input*	kW	10.25	10.25
COP*		3.9	3.9
Recovery @ 50°C Rise*	L/hr	680	
Operating Range (ambient)	°C	5-45	
Outlet Temperature	°C	65	
Refrigerant		R134a	
Hot Water Side			
TPR Valve Setting (VE/SS)	kPa	1000/850	
ECV Valve Setting (VE/SS)**	kPa	850/700	
Maximum Water Pressure Supply			
- Without ECV (VE/SS)**	kPa	800/680	
- With ECV (VE/SS)**	kPa	650/550	
Air Side			
Air Flow (at maximum static pressure)	L/s	5830	5270
Maximum Static Pressure	Pa	100	20
Electrical Connection			
Power supply	380 - 415 Volts / 3 Phase / 50 Hz		
Max Current per Phase (running, incl pump)	Amps	34.9	32.34
Minimum Circuit Size (per phase)	Amps	40	
Installation Data			
Minimum Ventilation per inlet and outlet	m^2	1.93	
Minimum room volume for indoor installation^	m^3	17.73	
Sound Pressure Level	dBA	69@3m	
Approx Weight Empty	kg	300	
Approx Weight Full	kg	310	
Storage per Heat Pump	L	400-8,000	
Clearances			
Evaporator Coil Side	mm	1000	
Back (vertical discharge models)	mm	Nil	
Back (horizontal discharge models)	mm	2000	
Display Side	mm	850	
Water Connections Side	mm	600	
Top (vertical discharge models)	mm	2000	
Top (horizontal discharge option)	mm	Clearance above unit required for service personnel to stand	

ACCESSORIES

Storage Tank	Pump	BMS Card	LAN Cable
410L (VE) A610 430	CM 10-1 #366094	17520 BACnet TCP/IP	17495
1000L to 5000L (SS)		17521 BACnet MS/TP	
RT Series		17522 Modbus RS485	

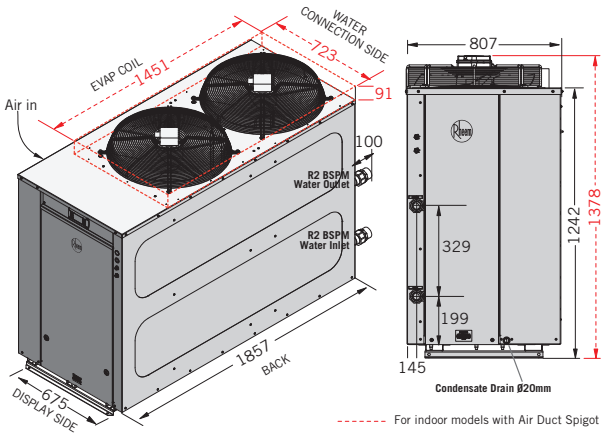
40KW AIR TO WATER – ALL HORIZONTAL DISCHARGE MODELS

953040HS – Non Ducted
952040H0 – Ducted
953040HS – Non Ducted stackable
952040HS – Ducted stackable



40KW AIR TO WATER – ALL VERTICAL DISCHARGE MODELS

95304000 – Non Ducted
95204000 – Ducted



HEAT PUMP SIZING CHART

	Number of Heat Pumps in Parallel			
	1	2	3	4
Primary Pump	Grundfos CM 10-1 #366094			
Branch Size ID	40			
Header Size ID	50	80	100	100

Note: Header pipe sizing is based on a total length of 40m of primary flow and return piping and 20 bends, excluding equa-flow manifolds on storage tanks and heat pumps @ 2.2m/sec velocity. One pump per Heat Pump.

RECOVERY

Ambient Temperature °C	5	10	15	20	25	30	35	40
Output (kW)	25.5	29	34.6	39.55	46.6	49.9	53	54.1
Recovery – Litres per hour								
20°C rise	1097	1247	1488	1701	2004	2146	2279	2326
25°C rise	877	998	1190	1361	1603	1717	1823	1861
30°C rise	731	831	992	1134	1336	1430	1519	1551
35°C rise	627	713	850	972	1145	1226	1302	1329
40°C rise	548	624	744	850	1002	1073	1140	1163
45°C rise	487	554	661	756	891	954	1013	1034
50°C rise	439	499	595	680	802	858	912	931
55°C rise	399	453	541	618	729	780	829	846

* 20°C ambient/60%RH. 39°C water in / 45°C water out.

** ECV not supplied with water heater

^ To comply with AS1677.2, the minimum room size permissible is 7.5m3 for 18kW and 17.73m3 for 40kW per heat pump for indoor installation. A larger room size is recommended for efficient heat pump operation.

CASE STUDY

Kind Foundation Christchurch, New Zealand



THE PROCESS

Rheem Commercial supplied a system of three 16kW air-to-water heat pumps to deliver all potable hot water requirements. A smart plant room design allowed for effective management of discharge airflow, ensuring optimal efficiency and ease of servicing.

The system delivers approximately 600L per hour at a 50°C rise in winter, increasing to up to 900L per hour in summer, providing reliable year-round performance.

THE SOLUTION

The Rheem 16kW air-to-water heat pumps with top discharge now supply all the building's potable hot water. Delivering an impressive 600L per hour at a 50°C rise during Christchurch's winter (and up to 900L per hour in summer), this system is a real credit to everyone involved in its design and installation.

With strong performance, modular design and flexible configuration options, the Rheem commercial heat pump range makes choosing a hot water plant for commercial builds an easy decision.

THE DETAILS

Product

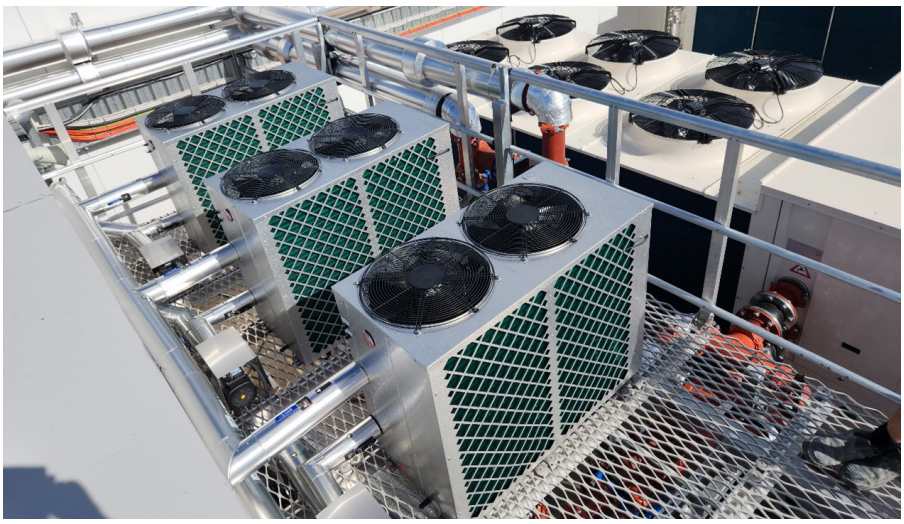
- RHEEM HEAT PUMP PLANT
- 3 X MODEL 95301800
- 1 X 430L STORAGE TANK MODEL A610430

Designers

MESH CONSULTING LIMITED AUCKLAND

Plumbers

AQUAPRO CHRISTCHURCH



WATER TO WATER HEAT PUMP

HEAT PUMP | REDUCED CHILLING LOAD | COMPACT | UP TO 7.0 COP EFFICIENCY

FOR WHERE ENERGY EFFICIENCY IS ESSENTIAL

The Rheem Water to Water (W2W) range includes units using R134a for hot water heating up to 65°C, with a minimum entering water temperature on the building chiller loop of 12°C, giving a return water temperature of 7°C. The units are compact and suitable for indoor or outdoor installation.

EFFICIENCY

The ability of these units to provide a dual efficiency sees combined COPs of up to 7.05. The efficiency in hot water production is up to 4.05 and this leads to substantial savings in energy use and heating cost. The savings are magnified where the cooling by-product lessens a building's chilling load. COP in cooling are up to 3.05.

RETURN ON INVESTMENT

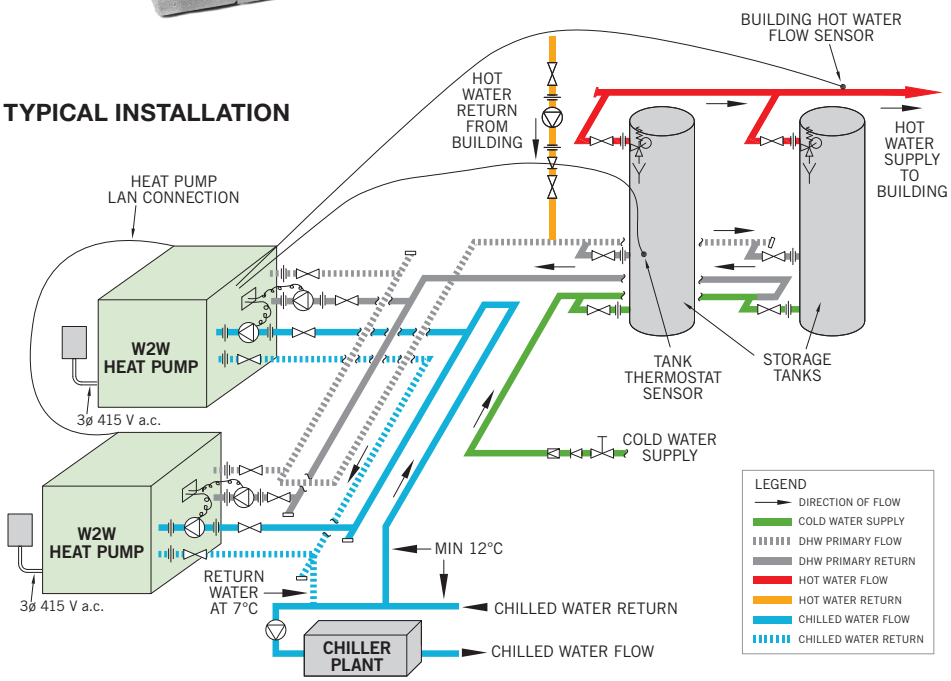
High COP of this product results in a very favourable return on investment, making the W2W HP a sound environmental and financial investment compared to gas and electric heating systems.

MORE KEY FEATURES

- Water Mark certified 316L stainless steel, double-wall brazed plate heat exchanger on domestic hot water side
- Multiple safeties including low temperature freeze protection and flow switch on the chilled water side
- Full commercial construction with marine grade aluminium case
- Rheem iQ control provides on board diagnostics, system configuration and optional high level BMS connectivity via Modbus or BACnet



TYPICAL INSTALLATION



SEALED SYSTEM 2 YEAR WARRANTY | PARTS & LABOUR 1 YEAR WARRANTY

WaterMark
AS 3498
Lic WMK 21549
SAI Global

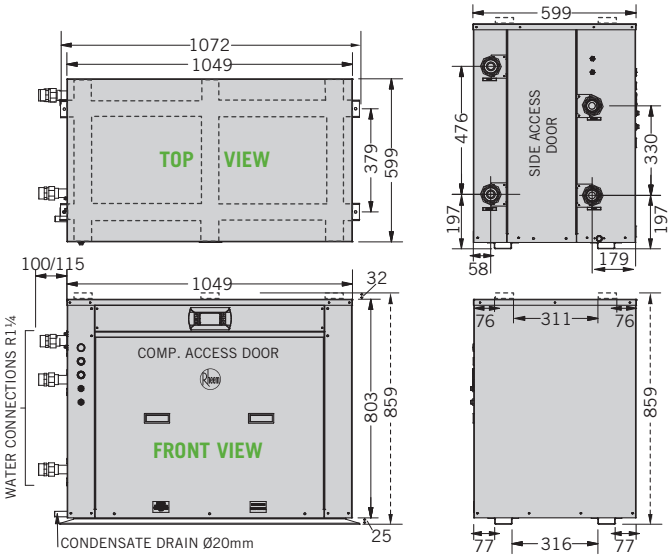
*Conditions apply: For full terms and conditions please contact Rheem or visit rheem.co.nz/support/commercial-warranties/

TECHNICAL DATA

WATER TO WATER 20kW & 45kW MODELS		
Model	**20kW**	**45kW**
Nominal Heating Capacity^	15kW	34.75kW
Nominal Cooling Capacity^	11.3kW	25.9kW
Power Input kW^	3.7kW	8.8kW
Coefficient of Performance (Heating)^	4	4
Coefficient of Performance (Cooling)^	3	3
Maximum DHW Temperature	65 °C	
Refrigerant	R134a	
Hot Water Side		
TPR Valve Setting (VE/SS)	1000/850 kPa	
ECV Setting (VE/SS)*	850/700 kPa	
Maximum Water Supply Pressure		
– Without ECV (VE/SS)*	800/680 kPa	
– With ECV (VE/SS)*	680/550 kPa	
Hot Water Side Flow Rate	1.1L/s	2.2L/s
Heat Exchanger Heating Design	316L Stainless steel – Double wall brazed plate	
Design Heating Temperature Difference	6°K	
Design Pressure Drop	40kPa	
Cold Water Side		
Maximum Water Supply Pressure	2450kPa	
Cold Water Side Flow Rate	1.1L/s	1.85L/s
Heat Exchanger Cooling Design	316L Stainless steel – Single wall brazed plate	
Design Cooling Temperature Difference	5 °K	
Design Pressure Drop	40kPa	
Minimum room volume for indoor installation	5.6m³	15.34m³
Electrical Connection		
Power supply	3 Phase / 415V / 50Hz	
Max Current per Phase (running, incl pumps)	13.96	29.94
Minimum Circuit Size (per phase)	20A	40
Installation Data		
Sound Pressure Level	59dBa @ 3m	
Approx Weight Empty	100kg	120kg
Approx Weight Full	105kg	125kg
Storage per Heat Pump	400L to 4000L	400L to 8000L
Clearances		
Front	850mm	
Back	Nil mm	
Water Connections Side	850 mm	
RHS Side	Nil mm	
Top (clearance above unit required for service personnel to stand)	0 mm	

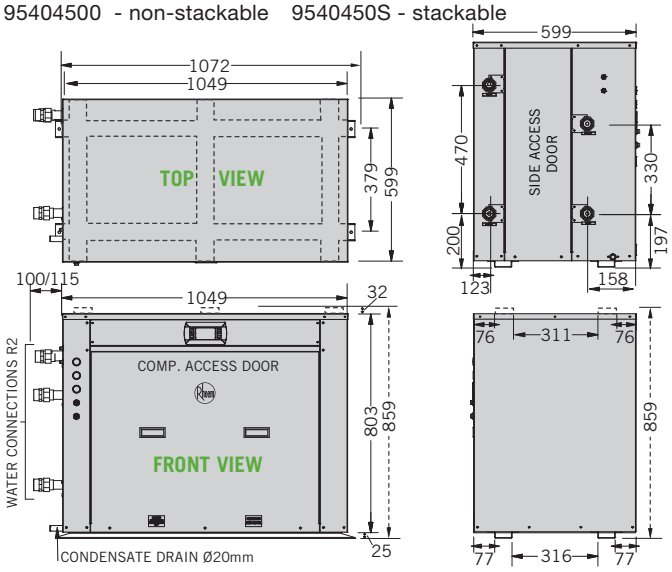
20KW MODEL

95402000 - non-stackable 9540200S - stackable



45KW MODEL

95404500 - non-stackable 9540450S - stackable



* ECV not supplied with water heater

^ Rating Conditions: Heating 39°C Water in, 45°C water out, 51°C SCT, Cooling 12°C water in, 7°C water outlet, 2°C SST.

PUMP & PIPE SIZING CHART

	20kW				45kW			
Hot Side	**Number of Heat Pumps in Parallel**							
	1	**2**	**3**	**4**	**1**	**2**	**3**	**4**
Pump	Grundfos CM 3-2 #366084				Grundfos CM10-1 #366094			
Branch Size (mm)	40				50			
Header Size (mm)	40	50	65	80	50	80	100	100
Cold Side	**Number of Heat Pumps in Parallel**							
	1	**2**	**3**	**4**	**1**	**2**	**3**	**4**
Pump	Grundfos CM 3-2 #366084				Grundfos CM10-1 #366094			
Branch Size (mm)	40				50			
Header Size (mm)	40	50	65	80	50	80	100	100

ACCESSORIES

Storage Tank	Pump	BMS Card	LAN Cable
410L (VE) A610 430	2 x CM 3-2 (20kW) #366084	17520 BACnet TCP/IP	17495
1000L to 5000L (SS)	2 x CM 10-1 (45kW) #366094	17521 BACnet MS/TP	
RT Series		17522 Modbus RS485	

RECOVERY

Model	**95402000**			**95404500**		
Evaporator Inlet Temperature °C	**12**	**20**	**35**	**12**	**20**	**35**
Output (kW)	**15**	**19**	**24**	**34.75**	**45.9**	**55.9**
Recovery – Litres per hour						
20°C rise	645	817	1032	1494	1974	2404
25°C rise	516	654	826	1195	1579	1923
30°C rise	430	545	688	996	1316	1602
35°C rise	369	467	590	854	1128	1374
40°C rise	323	409	516	747	987	1202
45°C rise	287	363	459	664	877	1068
50°C rise	258	327	413	598	789	961
55°C rise	235	297	375	543	718	874

Certified System
Quality
ISO 9001

Install a Rheem®

Rheem New Zealand Limited
475 Rosebank Road, Avondale 1026, PO Box 19011, Avondale, Auckland 1746. Freephone 0800 657 336 – www.rheem.co.nz
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